

Claims

1. Coating composition for producing formable scratchproof coatings with dirt repellency effect, comprising
 - 5 A) from 1 to 30% by weight of a prepolymer obtainable by free-radically polymerizing a mixture comprising
 - 10 A1) from 1 to 10 parts by weight of at least one sulphur compound containing at least 3 thiol groups and
 - A2) from 90 to 99 parts by weight of alkyl (meth)acrylates,
 - B) from 0.2 to 10% by weight of at least one fluoroalkyl (meth)acrylate having 3 to 30 carbon atoms in the alcohol residue and including 6 to 61 fluorine atoms,
 - C) from 20 to 80% by weight of polyfunctional (meth)acrylates,
 - 20 D) from 0.01 to 10% by weight of at least one initiator,
 - E) from 2 to 75% by weight of at least one diluent and
 - F) from 0 to 40% by weight of customary additives.
- 25
2. Coating composition according to Claim 1, characterized in that the prepolymer A) has a viscosity number to DIN ISO 1628-6 in the range from 8 to 30 15 ml/g measured in CHCl₃ at 20°C.
3. Coating composition according to Claim 1 or 2, characterized in that the alkyl (meth)acrylates used to prepare the prepolymer A) have 1 to 8 35 carbon atoms in the alcohol residue.
4. Coating composition according to Claim 3,

characterized in that the prepolymer A) is prepared using a mixture of alkyl (meth)acrylates A2) containing at least 10% by weight of methyl (meth)methacrylate and/or ethyl (meth)acrylate and 5 at least 2% by weight of alkyl (meth)acrylates having 3 to 8 carbon atoms.

5. Coating composition according to one of the preceding claims, characterized in that the sulphur 10 compound contains at least four thiol groups.
6. Coating composition according to Claim 5, characterized in that the sulphur compound is pentaerythritol tetrathioglycolate.
- 15 7. Coating composition according to one of the preceding claims, characterized in that the coating composition contains from 0.5 to 2% by weight of fluoroalkyl (meth)acrylates in accordance with component B).
- 20 8. Coating composition according to one of the preceding claims, characterized in that the fluoroalkyl (meth)acrylate in accordance with component B) can be represented by the formula (I)



30 in which the radical R_1 is a hydrogen atom or a methyl radical and the radical R_2 is a fluorinated alkyl radical of the formula $\text{C}_a\text{H}_b\text{F}_c$ in which a is an integer in the range from 3 to 30, b is an integer in the range from 0 to 4 and [lacuna] is an integer in the range from 6 to 61 where 35 $\text{c}=2\text{a}+1-\text{b}$.

9. Coating composition according to one of the preceding claims, characterized in that the initiator in accordance with component D) is a UV initiator.

5

10. Coating composition according to one of the preceding claims, characterized in that the diluent in accordance with component E) comprises (meth)acrylates having 1 to 10 carbon atoms, styrenes and/or acrylonitrile.

10

11. Coating composition according to one of the preceding claims, characterized in that component F) comprises UV absorbers and/or UV stabilizers.

15

12. Scratchproof formable dirt-repellent moulding comprising a polymeric substrate and a scratch-proof coating obtainable by a coating composition according to one of Claims 1 to 11.

20

13. Moulding according to Claim 12, characterized in that the polymeric substrate comprises polymethyl methacrylate, polycarbonate, polyvinyl chloride, polystyrene, polyolefins, cycloolefin copolymers, polyesters and/or acrylonitrile/butadiene/styrene copolymers.

25

14. Moulding according to Claim 12 or 13, characterized in that the moulding has an impact strength to ISO 179/1 of at least 10 kJ/m².

30

15. Moulding according to one of Claims 12 to 14, characterized in that the polymeric substrate has a thickness in the range from 1 mm to 200 mm.

35

16. Moulding according to one of Claims 12 to 15, characterized in that the scratchproof coating has a coat thickness in the range from 1 to 50 µm.

17. Moulding according to one of Claims 12 to 16, characterized in that the haze of the moulding increases by not more than 5% after a scratch resistance test to DIN 52 347.
5
18. Moulding according to one of Claims 12 to 17, characterized in that the polymeric substrate has an elasticity modulus to ISO 527-2 of at least 10 1500 MPa.
19. Moulding according to one of Claims 12 to 18, characterized in that the moulding has a weathering stability to DIN 53 387 of at least 15 4000 hours.
20. Moulding according to one of Claims 12 to 19, characterized in that the moulding has a transparency to DIN 5033 of at least 70%.
20
21. Moulding according to one of Claims 12 to 20, characterized in that the contact angle of alpha-bromonaphthalene with the surface of the polymeric article at 20°C is at least 50°.
25
22. Process for producing scratchproof formable dirt-repellent mouldings according to one of Claims 12 to 21, characterized in that a coating composition according to one of Claims 1 to 11 is applied to a polymeric substrate and cured.
30